

U.S. Serial No. 10/597,169

Response dated: November 3, 2011

Response to Office Action dated: August 3, 2011

CLAIM AMENDMENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A polymer composition comprising

- a) a multimodal high density polyethylene (A) having a density of 950 to 968 kg/m³ in an amount of 40 to 80 wt%; and
- b) a low density polyethylene (B) in an amount of 20 to 60 wt%, wherein the polymer composition has a melt flow rate under a load of 2.16 according to ISO 1133, at 190°C, of 5 to 20 g/10min.

Claim 2 (Canceled).

Claim 3 (Original): A composition according to claim 2 characterized in that the composition has a density, according, to ISO 1183-1987, of 930 to 950 kg/m³.

Claim 4 (Previously Presented): A composition according to claim 1 characterized in that the polyethylene (A) has a density, according to ISO 1183-1987, of 950 to 965 kg/m³.

Claim 5 (Previously Presented): A composition according to claim 1 characterized in that the polyethylene (A) has a melt flow rate MFR₂, according to ISO 1133, at 190 °C, of 5 to 20 g/10 min.

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Claim 6 (Previously Presented): A composition according to claim 1 characterized in that the polyethylene (A) has a weight average molecular weight M_w of 50000 to 150000 g/mol.

Claim 7 (Previously Presented): A composition according to claim 1 characterized in that the polyethylene (A) is bimodal.

Claim 8 (Previously Presented): A composition according to claim 1 characterized in that the polyethylene (A) comprises ethylene homopolymer and/or ethylene copolymer.

Claim 9 (Previously Presented): A composition according to claim 8 characterized in that the ethylene copolymer comprises ethylene and at least one C_3 to C_{20} α -olefin.

Claim 10 (Previously Presented): A composition according to claim 1 characterized in that the comonomer content in the polyethylene (A) is 0.1 to 1.0 % by mole.

Claim 11 (Previously Presented): A composition according to claim 1 characterized in that the polyethylene (A) comprises a low molecular weight fraction (LMW) and a high molecular weight fraction (HMW).

Claim 12 (Original): A composition according to claim 11 characterized in that the polyethylene (A) comprises 40 to 60 % by weight of the low molecular weight fraction (LMW).

Claim 13 (Previously Presented): A composition according to claim 11 characterized in that the low molecular weight fraction (LMW) is a homopolymer.

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Claim 14 (Previously Presented): A composition according to claim 11 characterized in that the comonomer content is lower than 0.2 % by mole in the low molecular weight fraction (LMW).

Claim 15 (Previously Presented): A composition according to claim 11 characterized in that the low molecular weight fraction (LMW) has a density, according to ISO 1183-1987, of at least 973 kg/m³.

Claim 16 (Previously Presented): A composition according to claim 11 characterized in that the low molecular weight fraction (LMW) has a melt flow rate MFR₂, according to ISO 1133, at 190°C, of 100 to 2000 g/10 min.

Claim 17 (Previously Presented): A composition according to claim 11 characterized in that the low molecular weight fraction (LMW) has a weight average molecular weight Mw of 10000 to 60000 g/mol.

Claim 18 (Previously Presented): A composition according to claim 11 characterized in that the high molecular weight fraction (HMW) is an ethylene copolymer.

Claim 19 (Previously Presented): A composition according to claim 18 characterized in that the ethylene copolymer comprises ethylene and at least one C₃ to C₂₀ α-olefin.

Claim 20 (Previously Presented): A composition according to claim 18 characterized in that the comonomer content in the high molecular weight fraction (HMW) is 0.2 to 2.0 % by mole.

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Claim 21 (Previously Presented): A composition according to claim 18 characterized in that the high molecular weight fraction (HMW) has a weight average molecular weight Mw of 80000 to 300000 g/mol.

Claim 22 (Previously Presented): A composition according to claim 1 characterized in that the polyethylene (B) is long chain branched.

Claim 23 (Previously Presented): A composition according to claim 1 characterized in that the polyethylene (B) has a density, according to ISO 1183-1987, of 910 to 935 kg/m³.

Claim 24 (Previously Presented): A composition according to claim 1 characterized in that the polyethylene (B) has a melt flow rate MFR₂, according to ISO 1133, at 190°C, of 3 to 15 g/10 min.

Claim 25 (Previously Presented): A composition according to claim 1 characterized in that the polyethylene (B) is an ethylene copolymer.

Claim 26 (Original): A composition according to claim 25 characterized in that the ethylene copolymer comprises ethylene and at least one component selected from the group consisting of vinyl acetate, vinyl acrylate, vinyl methacrylate, ethyl acrylate, methyl acrylate and butyl acrylate.

Claim 27 (Previously Presented): A composition according to claim 1 characterized in that the composition comprises 40 to 70 % by weight polyethylene (A) and 30 to 60 % by weight polyethylene (B).

Claim 28 (Previously Presented): A composition according to claim 1 characterized in that the composition comprises additionally
c) other polymer(s) up to 20 % by weight.

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Claim 29 (Previously Presented): A composition according to claim 1 characterized in that the composition comprises additionally

- d) antioxidant(s) and/or process stabilizers of less than 2000 ppm.

Claim 30 (Previously Presented): A coating having a coating weight of 20 g/m² made of the composition according to claim wherein the coating has a vapor transmission rate (WVTR), according to ASTM E96, of less than 15.5 g/m²/24h.

Claim 31 (Previously Presented): A multi-layer material comprising

- a) a substrate as a first layer
- b) a polymer composition according to claim 1 as at least a further layer.

Claim 32 (Original): A multi-layer material according to claim 31 characterized in that the substrate is selected from the group consisting of paper, paperboard, aluminum film and plastic film.

Claim 33 (Withdrawn): A process for producing a composition according to claim 1 characterized in that

- a) the polyethylene (A) is produced in a multistage process comprising a loop reactor and a gas phase reactor, wherein the low molecular weight fraction is generated in at least one loop reactor and the high molecular weight fraction is generated in a gas phase reactor;
- b) the polyethylene (B) is produced by a free radical polymerization in a high pressure autoclave process; and
- c) polyethylene (A) and polyethylene (B) are blended together and compounded by using an extruder.

Claim 34 (Withdrawn): A process according to claim 33 characterized in that the catalyst used for the process producing the polyethylene (A) is a high activity

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procatalyst comprising a particulate inorganic support, a chlorine compound deposited on the support, wherein the chlorine compound is the same as or different from the titanium compound, the procatalyst being formed by steps comprising:

contacting the inorganic support with an alkyl metal chloride which is soluble in non-polar hydrocarbon solvents, and has the formula $(R_nMeC_{3-n})_m$ wherein R is a C₁ to C₂₀ alkyl group, Me is a metal of group III (13) of the periodic table, n = 1 or 2 and m = 1 or 2, to give a first reaction product, and

contacting the first reaction product with a compound containing hydrocarbyl and hydrocarbyl oxide linked to magnesium which is soluble in non-polar hydrocarbon solvents, to give a second reaction product, and

contacting the second reaction product with a titanium compound which contains chlorine, having the formula $Cl_xTi(OR^{IV})_{4-x}$, wherein R^{IV} is a C₂ to C₂₀ hydrocarbyl group and x is 3 or 4, to give the pro-catalyst.

Claim 35 (Withdrawn): A process for producing a multi-layer material according to claim 31 characterized in that polymer composition according to claim 1 is applied on the substrate by a film coating line comprising an unwind roll, a wind roll, a chill roll and a coating die.

Claim 36 (Currently Amended): Use of the polymer composition according to claim 1 for extrusion coating
An extrusion coating comprising the polymer composition according to claim 1.

Claim 37 (Currently Amended): Use according to claim 36 characterized in that the polymer composition is used for extrusion coating producing a multi-layer material
A multi layer material comprising the extrusion coating according to claim 36.